

AS 7641:2018



# Rail gauge corner lubrication management – For friction levels and measurement



Infrastructure Standard



This Australian Standard™ AS 7641 Rail gauge corner lubrication management – For friction levels and measurement was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

CQU

Scroba Rail Services

ARTC

LB Foster Rail Technologies

TfNSW

Airlube Australasia

The Standard was approved by the Development Group and the Infrastructure Standing Committee in March, 2018. On March 20, 2018 the RISSB Board approved the Standard for release.

This Standard was issued for public consultation and was independently validated before being approved.

Development of the Standard was undertaken in accordance with RISSB's accredited process. As part of the approval process, the Standing Committee verified that proper process was followed in developing the Standard.

RISSB wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comment on a draft of the Standard during the open review.

I commend this Standard to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.



**Paul Daly**

Chief Executive Officer

Rail Industry Safety and Standards Board

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## Document control

### Document identification

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## 1 Introduction

### 1.1 Purpose

Friction management using solid or fluid (oil, grease, etc.) substances at the wheel-rail interface is a complex subject and includes the following aspects:

- (a) Lubrication of the wheel flange/rail gauge corner (active interface), commonly referred to as 'flange or rail lubrication'.
- (b) Friction modification of the top of rail/wheel tread interface, commonly referred to as 'top of rail friction management'.

The objective of this document is to specify friction levels and provide guidance for application for rail lubrication for areas which have been determined by the RIM to require lubrication.

Rail lubrication is primarily aimed at extending the life of rail and wheel assets.

Extensive research has been conducted into the performance of lubricators and lubricants in recent years. This research has been conducted against a background of increasing cost pressures on railways and a need to reduce the cost of installing and maintaining lubrication systems while still providing the benefits of lubrication in terms of–

- (a) reducing high rail gauge face wear;
- (b) reducing wheel flange wear;
- (c) reducing the risk of wheel climb on high rails;
- (d) reducing Rolling Contact Fatigue (RCF) initiation on the high rail gauge corner;
- (e) reducing rail grinding maintenance on the high rail;
- (f) reducing wheel / rail noise; and
- (g) reducing energy (fuel / electrical power) requirements of trains.

Lubrication of the wheel rail interface on the gauge face and gauge corner reduces friction energy, which reduces wear. This in turn helps to optimise the life of the rail and wheel assets, and can lead to noise reduction.

Lubrication is required wherever there is potential for significant wear on curves exhibiting gauge face wear on the high rail, risk of wheel climb, or where flanging noise is a problem.

### 1.2 Scope

This document specifies rail friction levels for lubricated rail curves, and provides guidance on how wayside lubrication systems can be designed to achieve these friction levels.

This document does not cover the use of friction modifiers for top of rail application.

### 1.3 Compliance

There are two types of control contained within Australian Standards developed by RISSB:

- (a) Requirements.
- (b) Recommendations

**Requirements** – it is mandatory to follow all requirements to claim full compliance with the Standard.

Requirements are identified within the text by the term 'shall'.